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Marine Casualty Investigations

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TOTAL LOSS

RECORD OF CANADIAN FISHING VESSELS

MCI STUDY NO. 2 MAY 1987

MARINE CASUALTY INVESTIGATIONS
OTTAWA, ONTARIO

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A STUDY INTO CANADIAN FISHING VESSEL LOSSES

In any review of Canadian marine casualty statistics, one factor stands out above all others, and that is the dramatic increase in fishing vessel total losses from 1980 to 1984 inclusively. Analysis shows that these concerned mainly fires on fishing vessels under 25 gross tons. (Fishing vessels 15 gross tons and above are inspected by the Coast Guard; fishing vessels under 15 gross tons are regulated but not inspected by the Coast Guard.)

Because of the increase in losses, several recommendations were made over that period of time to the Ship Safety Branch of Coast Guard who, in turn, initiated a number of studies, notably an independent Study into Fires on Small Fishing Vessels.

Although not a fire-related casualty, the loss of the fishing vessel "STANLEY CLIPPER" prompted recommendations related to improved safety regulations for that section of the industry, including construction standards, to be made by the Commissioner at the Formal Investigation, in March 1985; this proved to be another milestone on the question of degree of regulation governing fishing vessels.

However, before any major constructional regulatory reform of the fishing industry took place, the number of F/V total losses fell dramatically after 1983. This study, although not exhaustive, is intended to draw attention to this period of abnormality in annual marine casualty statistics.

It should be stated that the term 'unexplained loss' means the loss of a vessel where the precise cause has not been independently verified; this is not to infer that the lack of an explanation necessarily indicated suspicious circumstances. Be it a boat, a house or a car, many fires start accidentally, but the exact cause cannot be ascertained. On this basis a typical year brings the unexplained losses, involving mainly fires and sinkings, to an average of 29 fishing vessels. In 1982, for instance, 'unexplained losses' increased to 94; in 1985, they decreased to 30.

Thus in any review of fishing vessel casualties, it is important to attempt to understand why fishing vessel total losses suddenly increased and then, equally suddenly, decreased, so that these factors may be taken into account in any consideration of regulatory reform.

The years 1978 to 1983 were particularly difficult for the fishing industry, especially on the East Coast, where the major companies had severe financial difficulties and

required Government intervention to support and re-organize the complete operations.

The following graphs attempt, in a simplified form of a complex subject, to show the factors involved that may explain this large, but temporary, increase in the loss of fishing vessels.

INTRODUCTION TO STUDY

This Study shows that, as to be expected, the fishing vessels of the Inshore Fleet are the category mainly affected by the number of total losses. Typically, these include vessels of 25 gross registered tons or less, which are generally manned by a crew of three or less. The study is divided into sectors or geographic regions to study prevalent groups of fishermen. Each sector is represented by three graphs depicting Total Losses, Fish Prices and Interest Rates for a 10-year period (1977-1986).

Sector Segregation

In order to undertake this study, Canada was divided into several sectors which approximately follow the Federal Fishing Zones. These sectors were then examined to determine the number of losses. Descriptions of the sectors involved are:

Sector 1: New Brunswick coast along Bay of Fundy up to and including Minas Basin including Grand Manan Island.

Sector 2: Nova Scotia coast from Minas Basin to Halifax but not including Halifax.

Sector 3: The coastline from Halifax, N.S. to Chatham, N.B.

Sector 4: From Chatham, N.B. to Bathurst, N.B. including both Chatham and Bathurst.

Sector 6: Entire Quebec coastline.

Sector 7: East coast of Newfoundland from Cape Norman to Trepassey, Nfld.

Sector 8: South and West coasts of Newfoundland from Cape Norman to Trepassey, Nfld. including Cape Norman and Trepassey, Nfld.

Sector 9: British Columbia coastline.

Other areas in this study were Prince Edward Island (Sector 5), Arctic waters (Sector 10) and Inland Waters (Sector 11); these latter sectors had so few losses that it was unnecessary to represent them by graphs.

Total Losses

The number of total losses and constructive total losses have been combined in the attached graphs. A total loss is declared when the vessel is totally destroyed or lost. A constructive total loss is defined as a vessel that is so damaged that the cost of repairing the damage would exceed the value of the vessel when repaired.

The total losses on the graphs have been broken down into four categories:

1. The number of total losses

   Total losses from all causes including fires, groundings, sinkings, heavy water damage, etc.

2. Total losses from fire

   Only those total losses resulting from a singular cause, fire.

3. Total losses other than from fire

   Total losses resulting from sinkings, groundings, strandings and destruction from all causes except fires.

4. Unexplained total losses

   Combines losses from all casualty groups (fires, sinkings, groundings etc.) where the precise cause is not reasonably explained. It represents a percentage of the number of Total Losses.

Fish Prices

In order to provide a 'yard stick' for the profitability of the fishing industry, a 'trend indicator' of fish prices is given in simplified graph form.

To establish prices for a sector, the quantity and value of the Inshore Catch are compared for each species. By this method the most common species for any particular region is ascertained, then examined. In accordance with the geographical division of this Study, port market and average fish prices paid for in the sector have been analyzed (usually one sector is represented by two primary species). It is acknowledged that only the most important species is included in this analysis.

Interest Rates

Virtually every industry relies heavily on 'borrowed funds' for operation, principally for capital expenditure. The 'going interest rate' therefore has a direct bearing on the success or failure of a particular enterprise; for this reason the Prime Lending Rate plus one point is included in the graphs to indicate monetary values and reflect the inflation at the time.

Weather

Any survey of fishing vessel losses must consider the weather. However, the majority of unexplained total losses were those involving fires, which type of casualty are not normally directly weather related in any event.

Included in this report is, therefore, a nine-year survey of weather conditions for both coasts to establish if an increase in storms played a part in the increase of losses. It is concluded that weather conditions were not a factor.

More precise details in this regard are:

East coast weather

An irregularity occurred in October 1983 when 24 fishing vessels were destroyed by heavy weather damage in Nova Scotia (Sector 3). These casualties have been verified beyond question and therefore are not included in the unexplained losses.

The greatest number of unexplained losses occurred from 1981 to 1983. The greatest number of unexplained total losses was in 1982, when the number of storms recorded was below the 10 year average. Therefore, weather was not a dominant factor in the number of unexplained total losses for this coast.

West coast weather

The greatest number of unexplained losses occurred from 1982 to 1984. The average number of storms during this period is 11.7 storms per year. As can be seen from the graphs, this figure also falls below the 10-year average for storm periods.

Findings

- There is an annual average of 29 fishing vessels lost in Canada from causes that are not readily identified. This is considered normal.
- There was a dramatic increase in unexplained losses, to a maximum of 94 in 1982. Most of these losses were from fires.
- The figures returned to 'normal' in 1985.
- The period 1979 to 1982 was an adverse time for the fishing industry, a period of high interest rates without the corresponding rise in fish prices.
- The unusual increase in fishing vessel total loss figures between 1980 and 1984 was not due to accidental causes.

AXIA
MARCH 1987.

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Sector 3

Total losses by cause 14

Interest rates on borrowed funds and price of selected species of fish 15

Total losses by cause as compared with interest rates and price of selected species of fish 16

Sector 4

Total losses by cause 17

Interest rates on borrowed funds and price of selected species of fish 18

Total losses by cause as compared with interest rates and price of selected species of fish 19

Sector 6

Total losses by cause as compared with interest rates on borrowed funds 20

Price of selected species of fish 21

Total losses by cause as compared with interest rates and price of selected species of fish 22

Sector 7

Total losses by cause 23

Interest on borrowed funds and price of selected species of fish 24

Total losses by cause as compared with interest rates and price of selected species of fish 25

Sector 8

Total losses by cause 26

Interest rates on borrowed funds and price of selected species of fish 27

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Total losses by cause 29

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Summary of Total Losses on Canadian Fishing Vessels 32

Annual Number of Storm Periods East Coast 33

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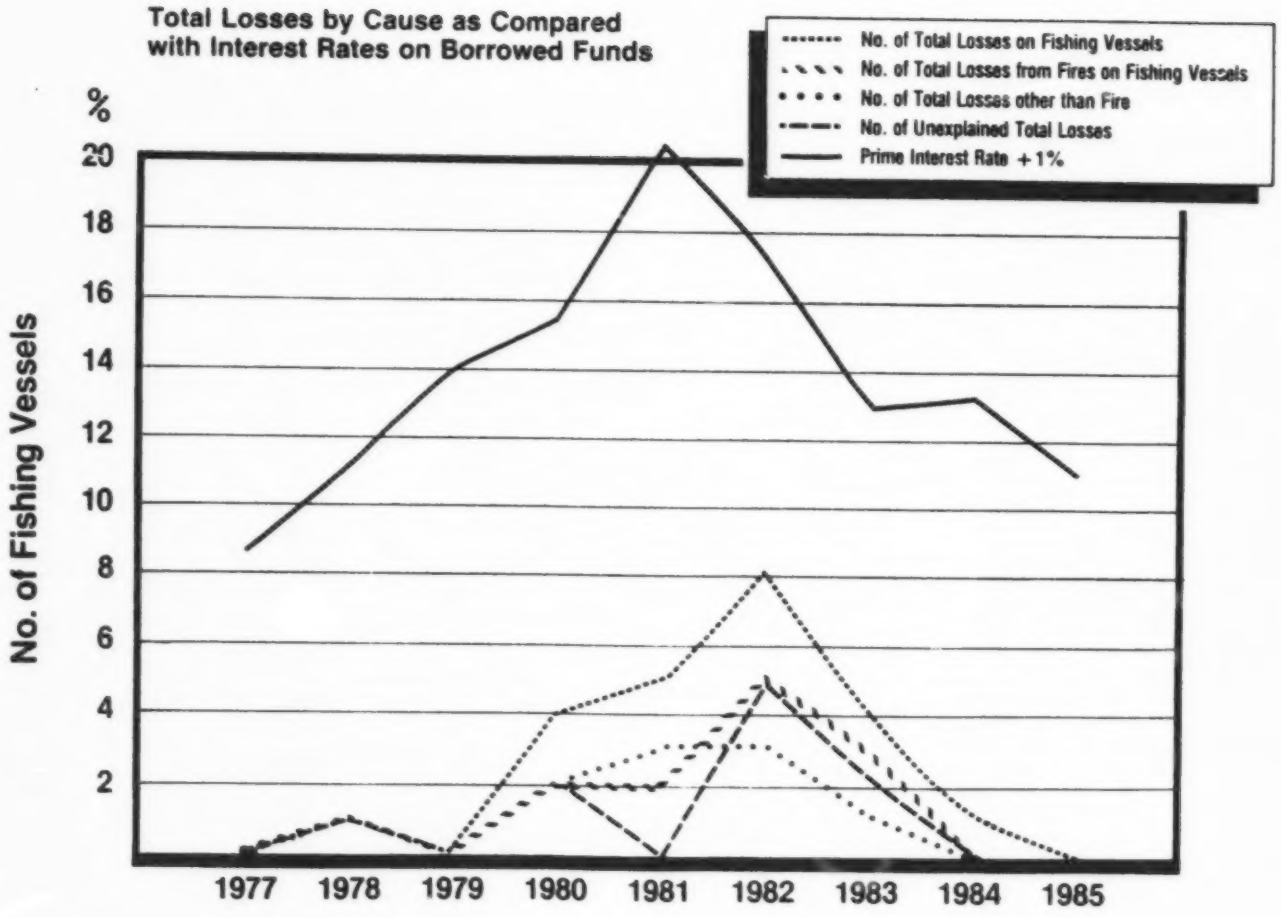
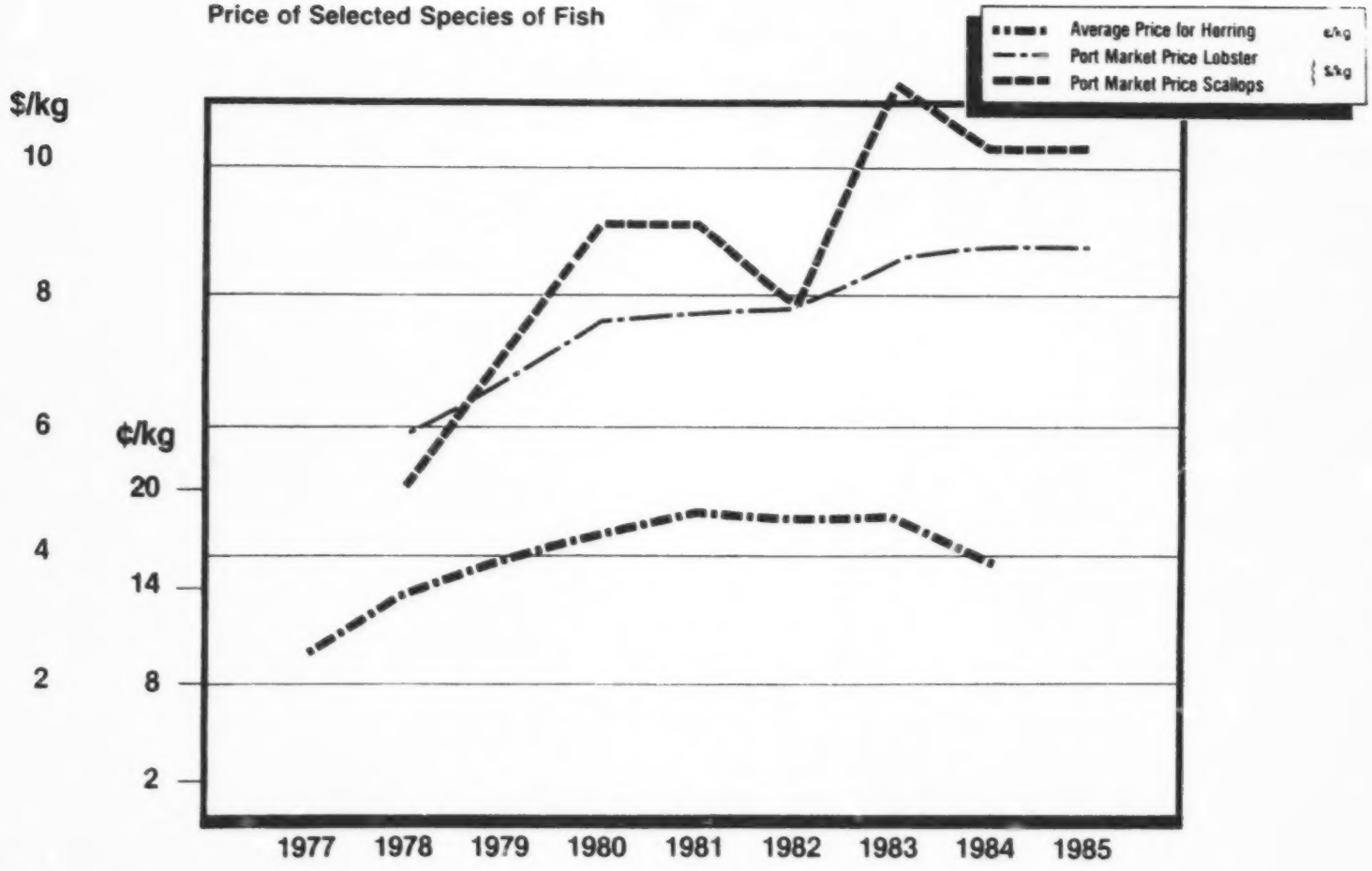
Sector 1

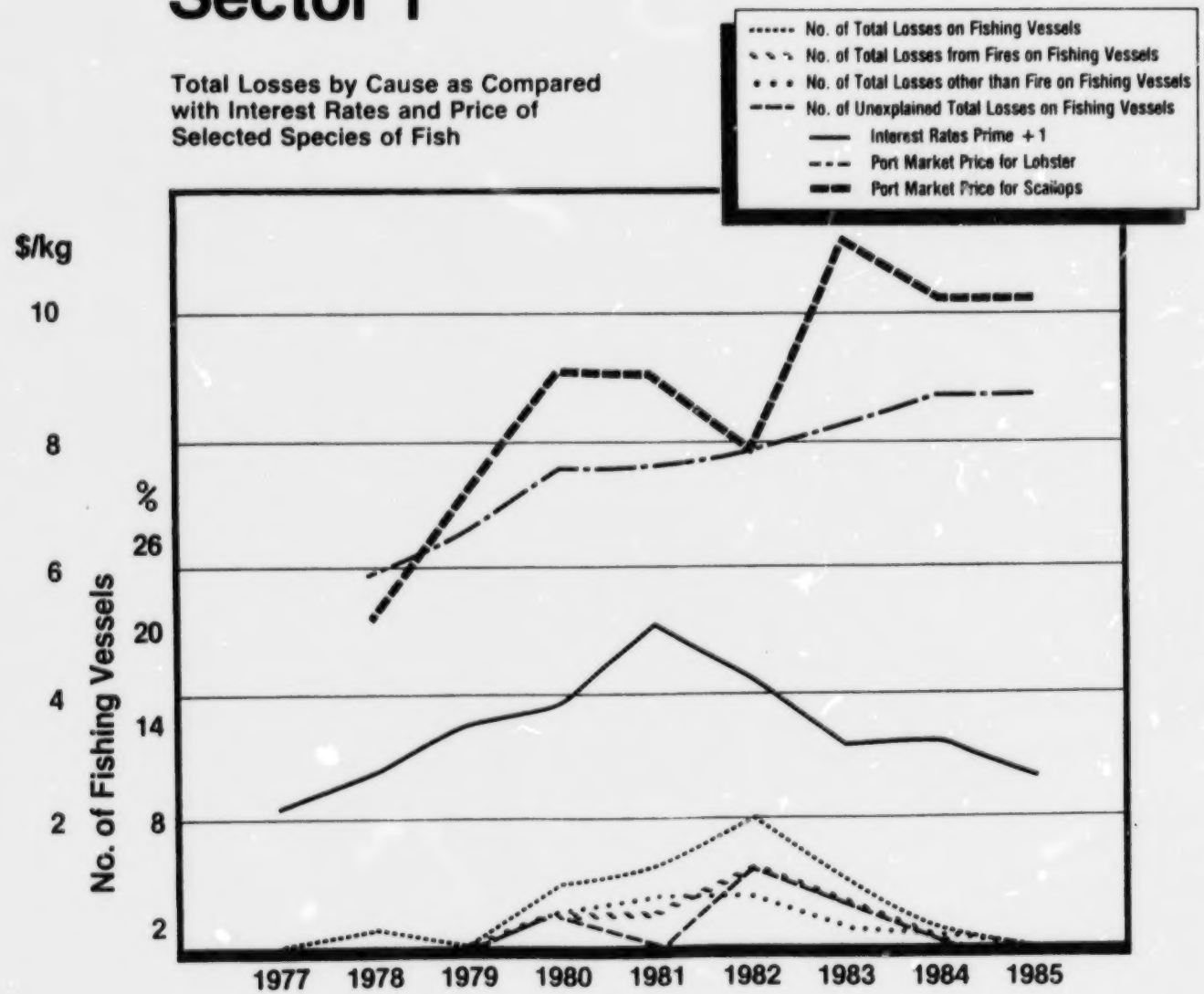

Total Losses by Cause as Compared
with Interest Rates on Borrowed Funds
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire
No. of Unexplained Total Losses
Prime Interest Rate +1%
%
No. of Fishing Vessels
20
18
16
14
12
10
8
6
4
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

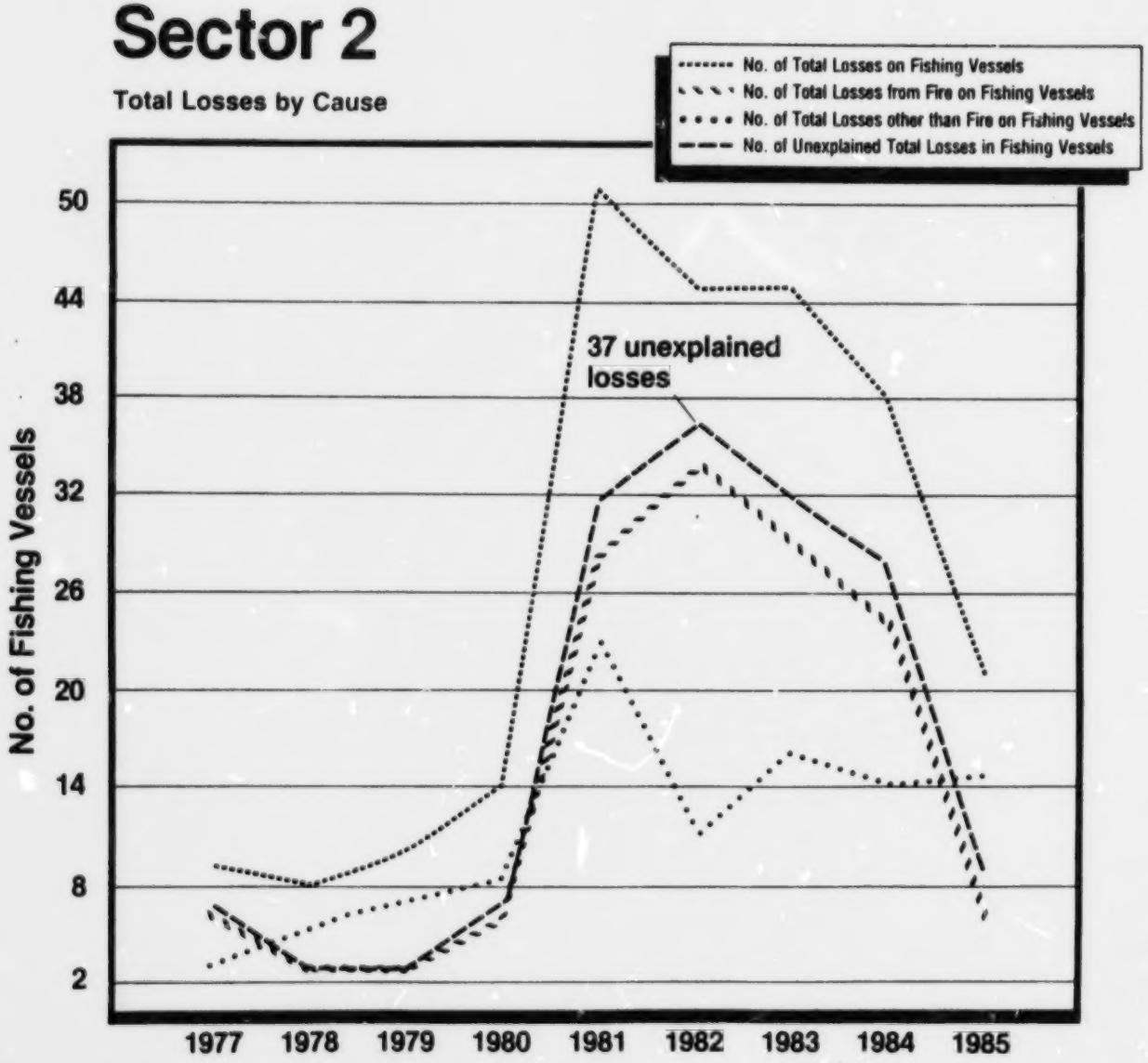
Sector 1


Price of Selected Species of Fish
Average Price for Herring ¢/kg
Port Market Price Lobster
Port Market Price Scallops $/kg
$/kg
10
8
6
4
2
¢/kg
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

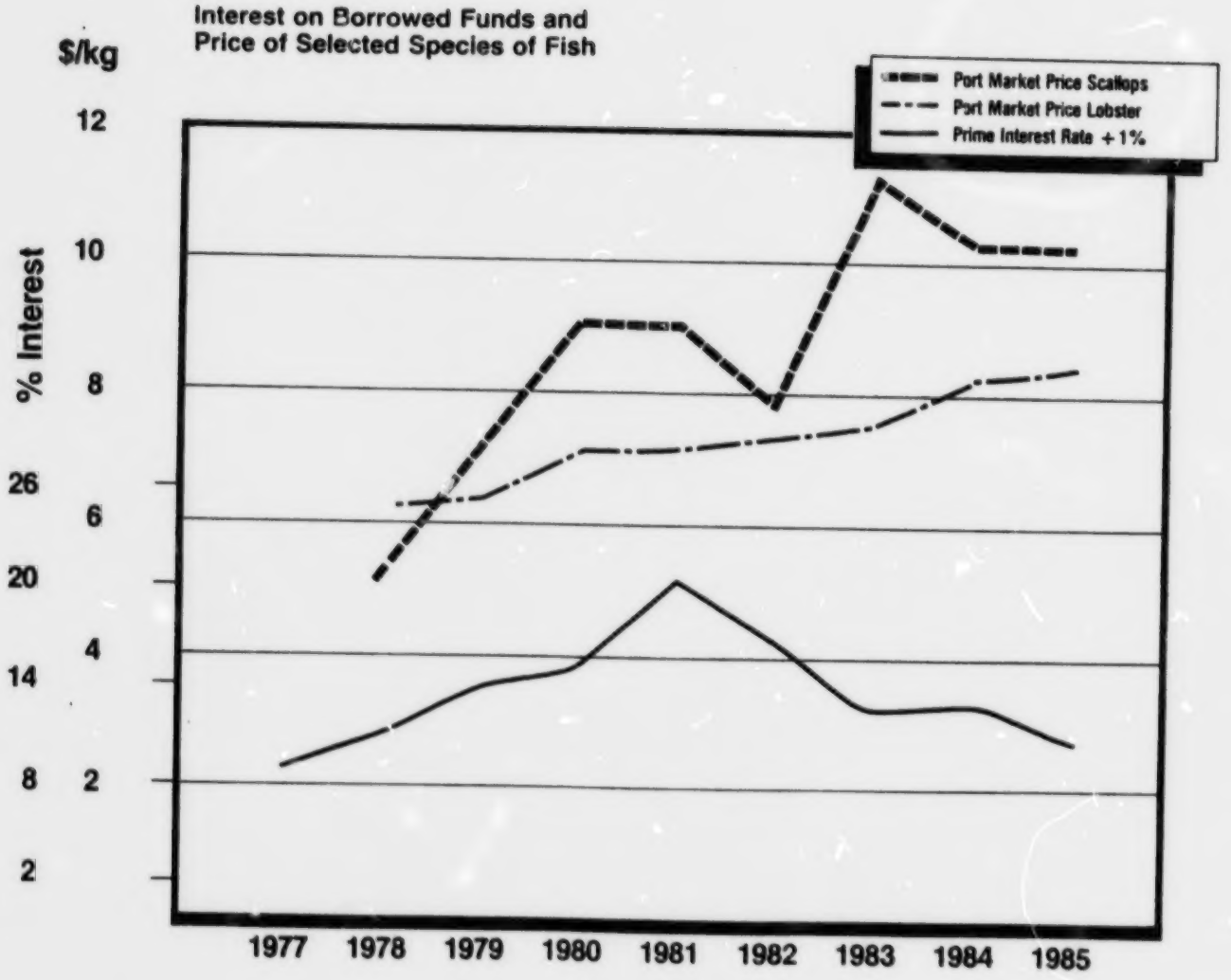
Sector 1

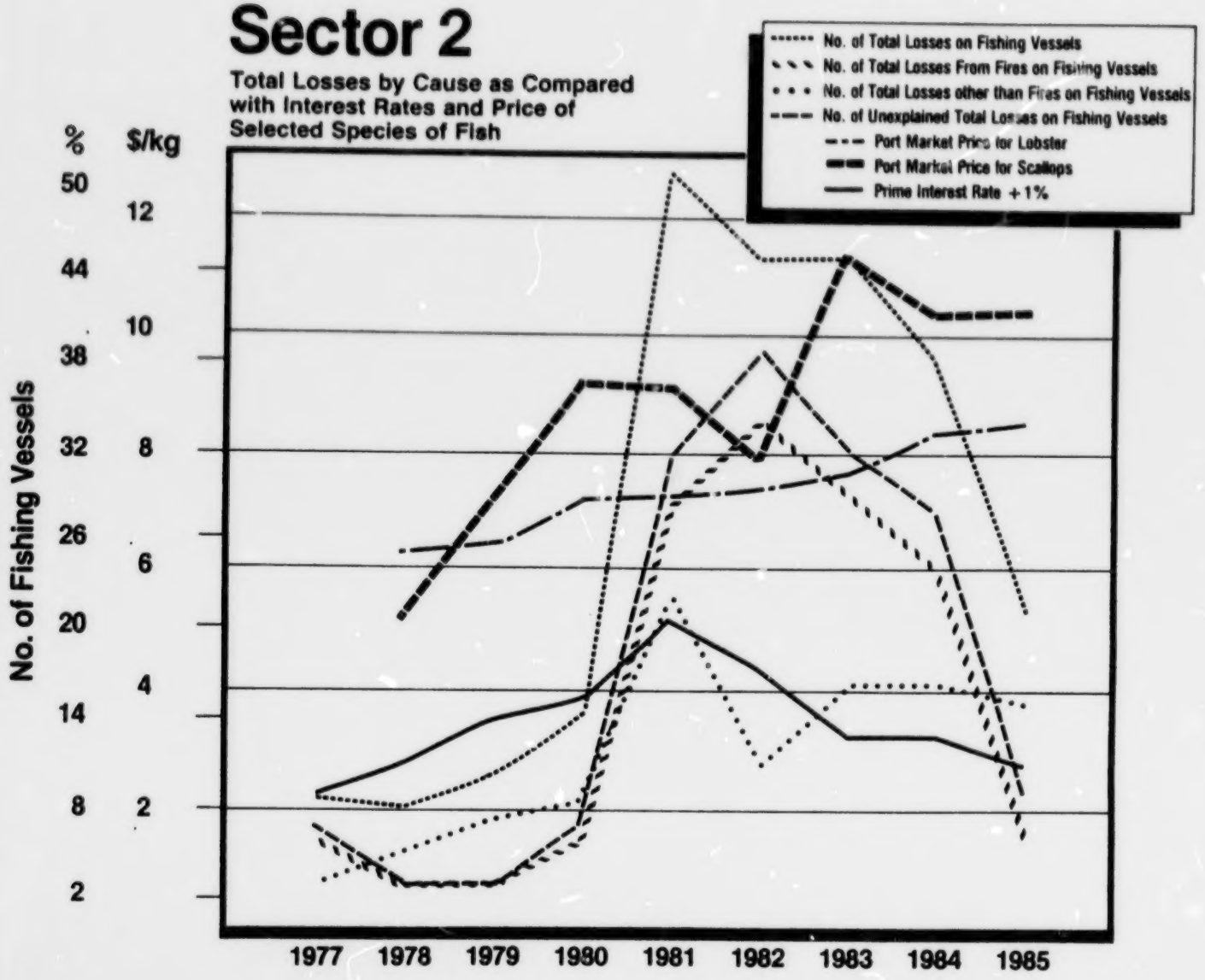
Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish



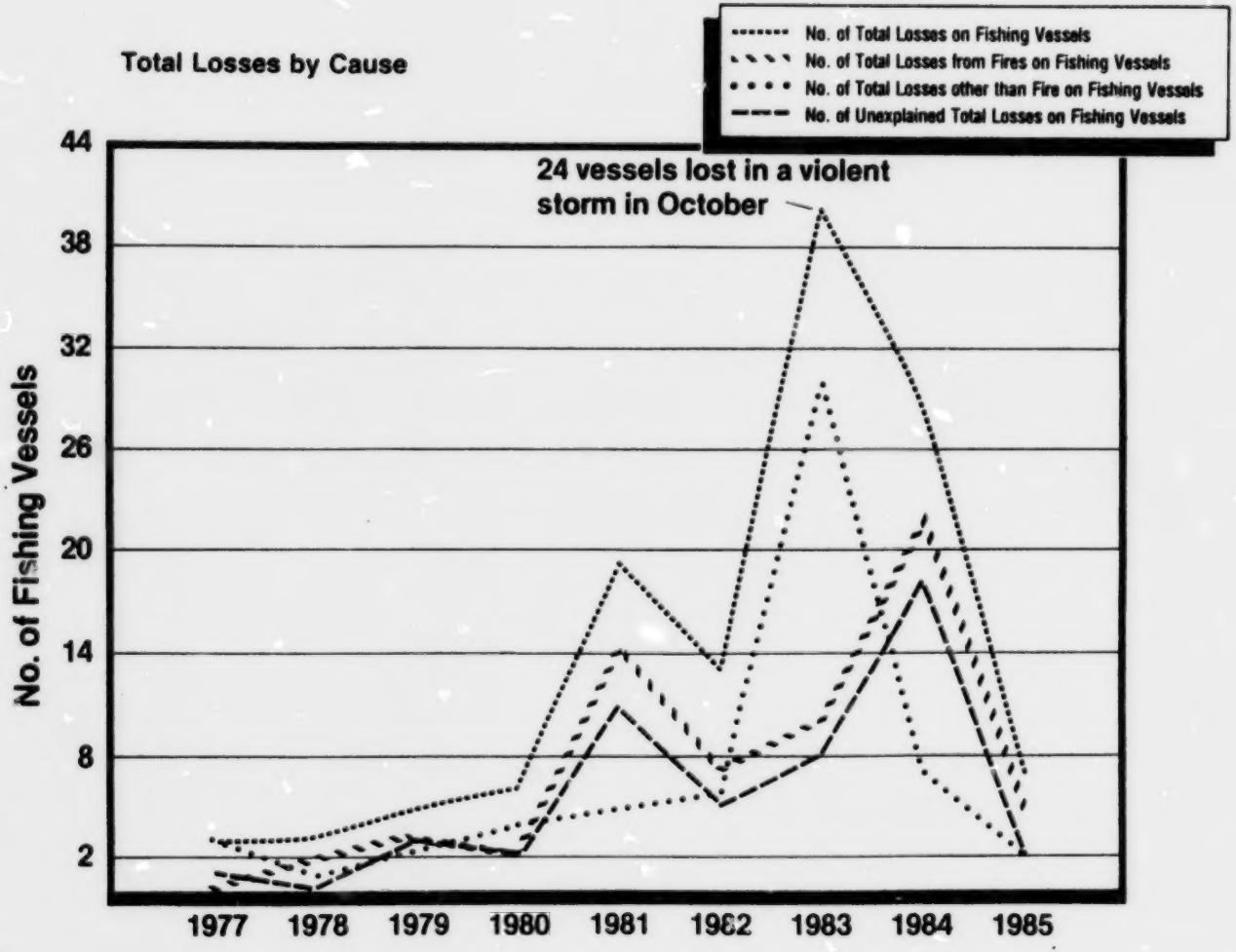

Sector 2
Total Losses by Cause
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fire on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses in Fishing Vessels
37 unexplained losses
No. of Fishing Vessels
50
44
38
32
26
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

Sector 2

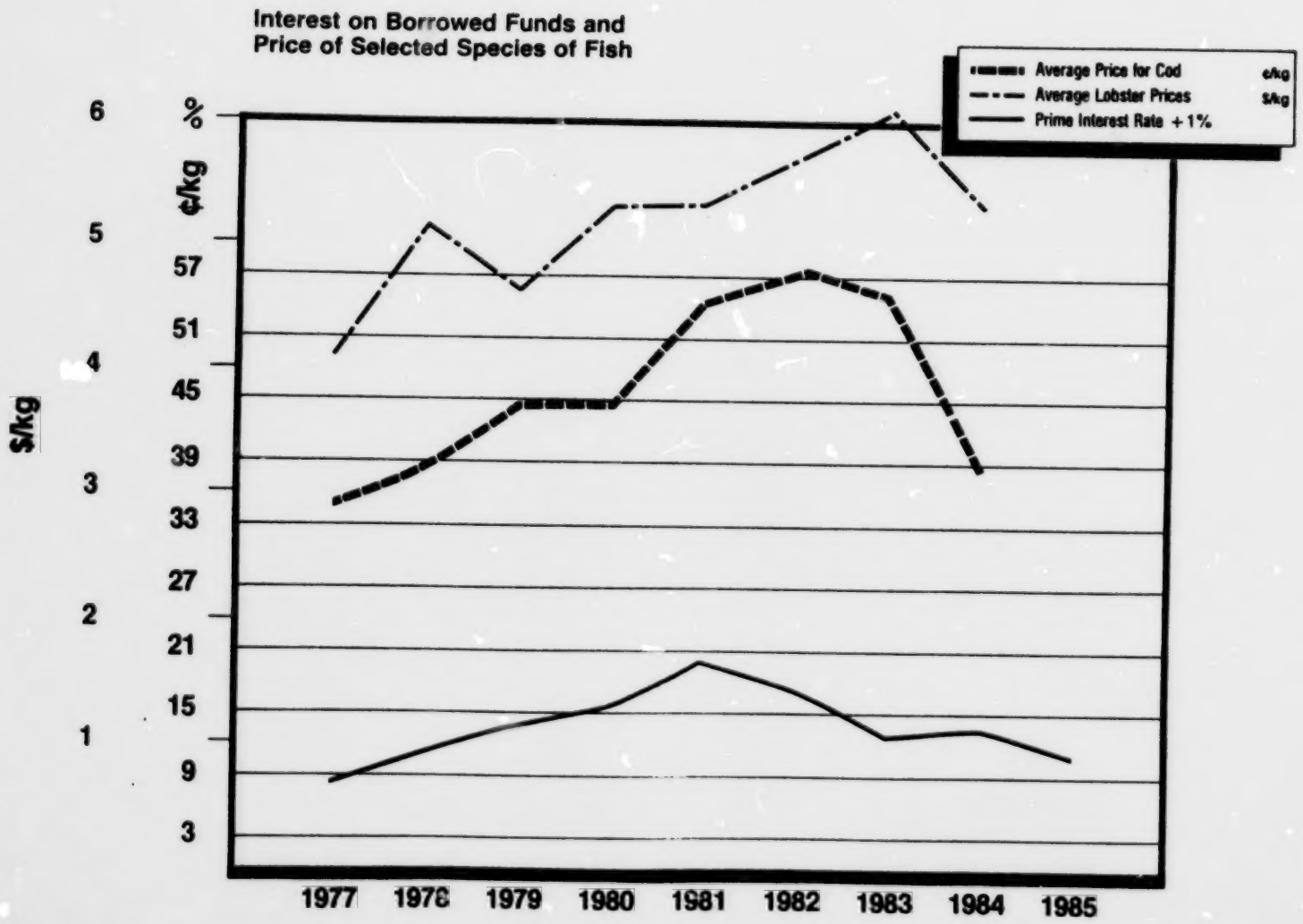

Interest on Borrowed Funds and
Price of Selected Species of Fish
$/kg
% Interest
12
10
8
6
4
2
26
20
14
8
2
Port Market Price Scallops
Port Market Price Lobster
Prime Interest Rate + 1%
1977
1978
1979
1980
1981
1982
1983
1984
1985


Sector 2
Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses From Fires on Fishing Vessels
No. of Total Losses other than Fires on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Port Market Price for Lobster
Port Market Price for Scallops
Prime Interest Rate +1%
No. of Fishing Vessels
%
$/kg
50
44
38
32
26
20
14
8
2
12
10
8
6
4
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

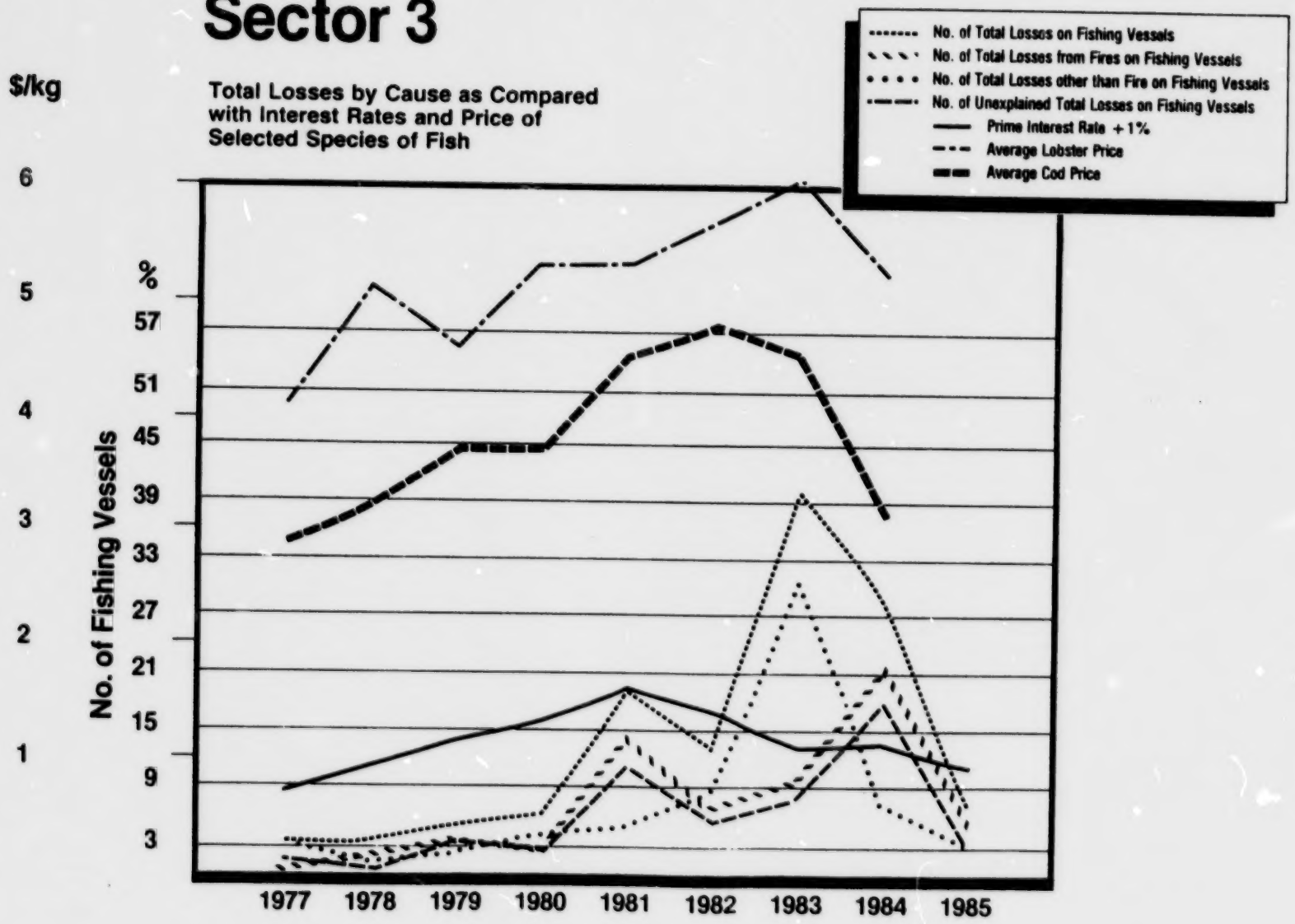
Sector 3


Total Losses by Cause
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
24 vessels lost in a violent storm in October
No. of Fishing Vessels
44
38
32
26
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

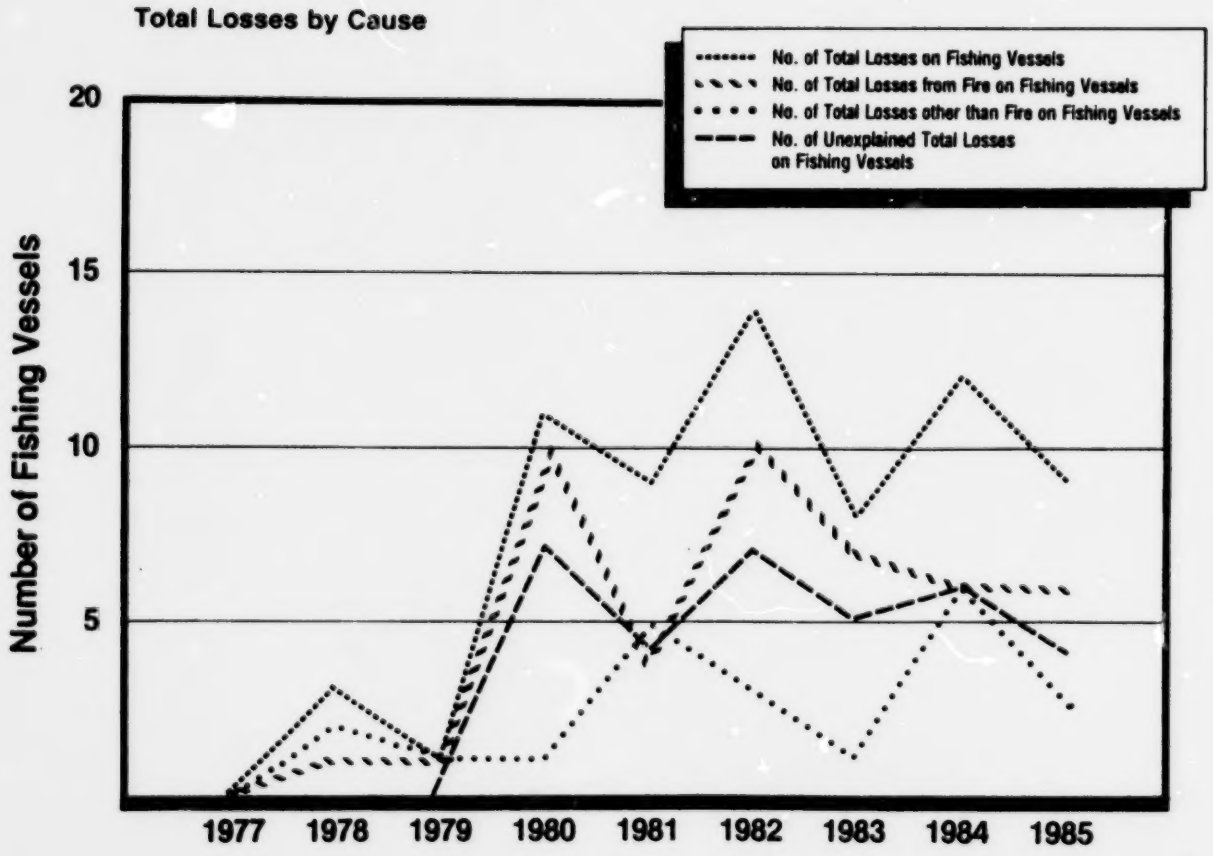
Sector 3


Interest on Borrowed Funds and
Price of Selected Species of Fish
Average Price for Cod ¢/kg
Average Lobster Prices $/kg
Prime Interest Rate + 1%
$/kg
6
5
4
3
2
1
%
¢/kg
57
51
45
39
33
27
21
15
9
3
1977
1978
1979
1980
1981
1982
1983
1984
1985

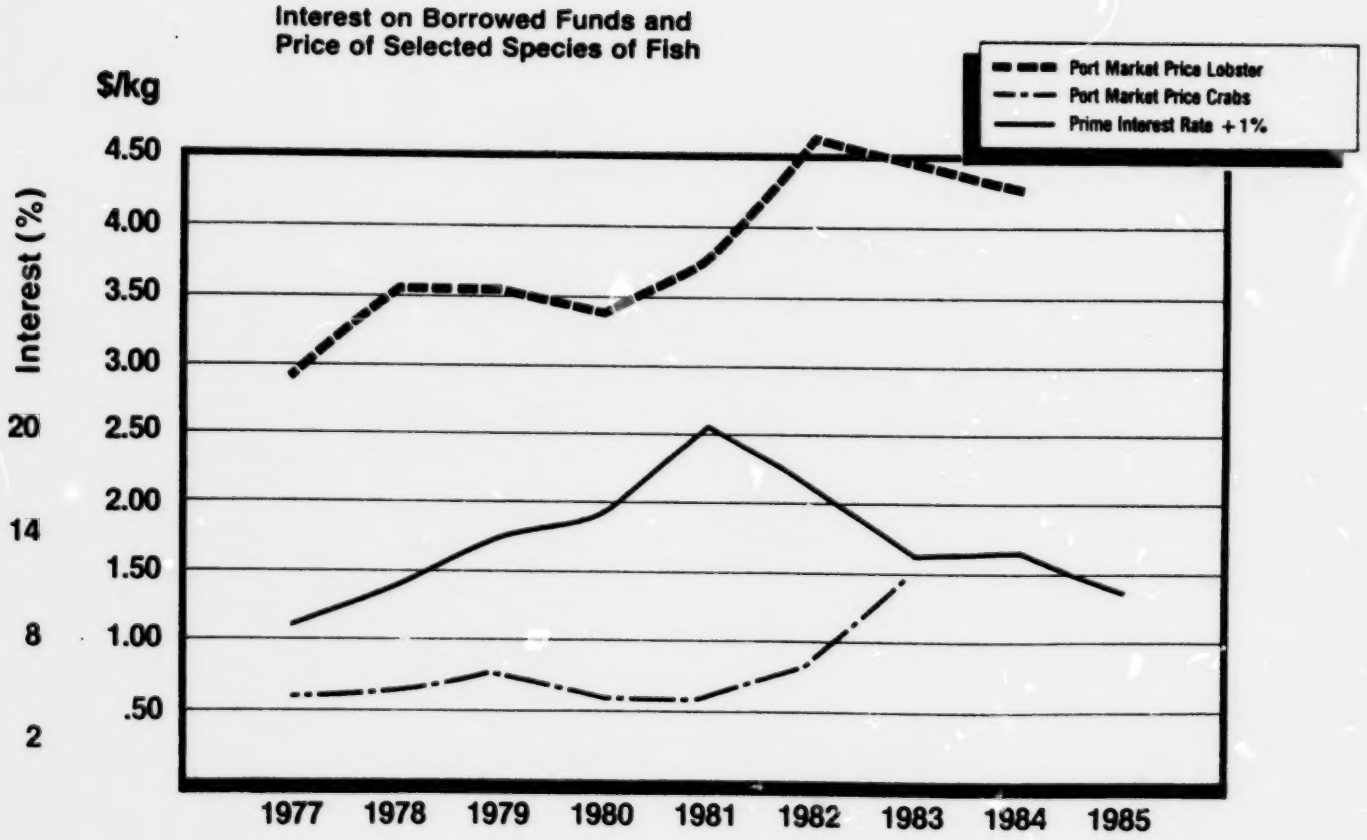
Sector 3


$/kg
Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Prime Interest Rate + 1%
Average Lobster Price
Average Cod Price
6
5
4
3
2
1
%
57
51
45
39
33
27
21
15
9
3
No. of Fishing Vessels
1977
1978
1979
1980
1981
1982
1983
1984
1985

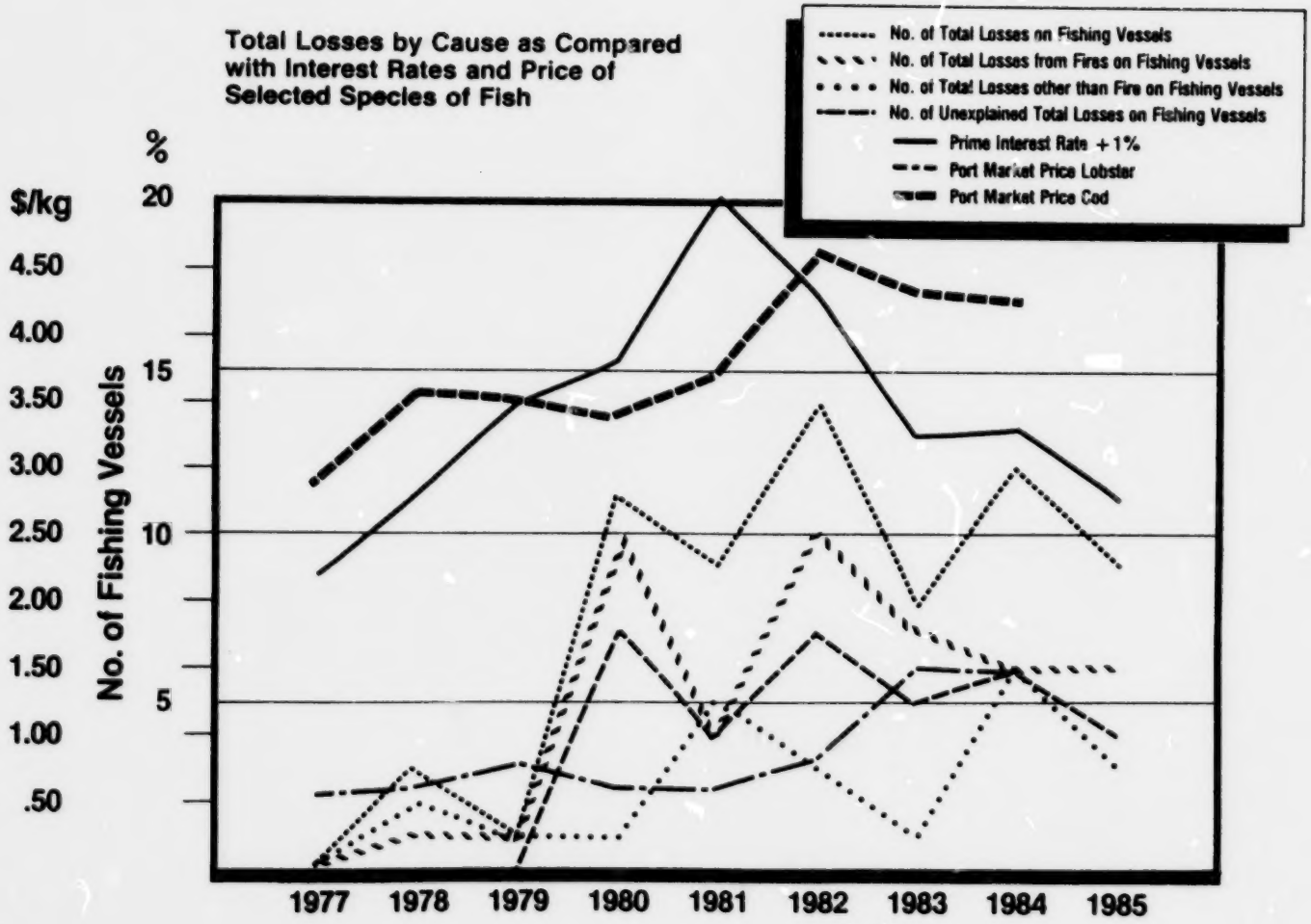
Sector 4


Total Losses by Cause
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fire on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Number of Fishing Vessels
20
15
10
5
1977
1978
1979
1980
1981
1982
1983
1984
1985

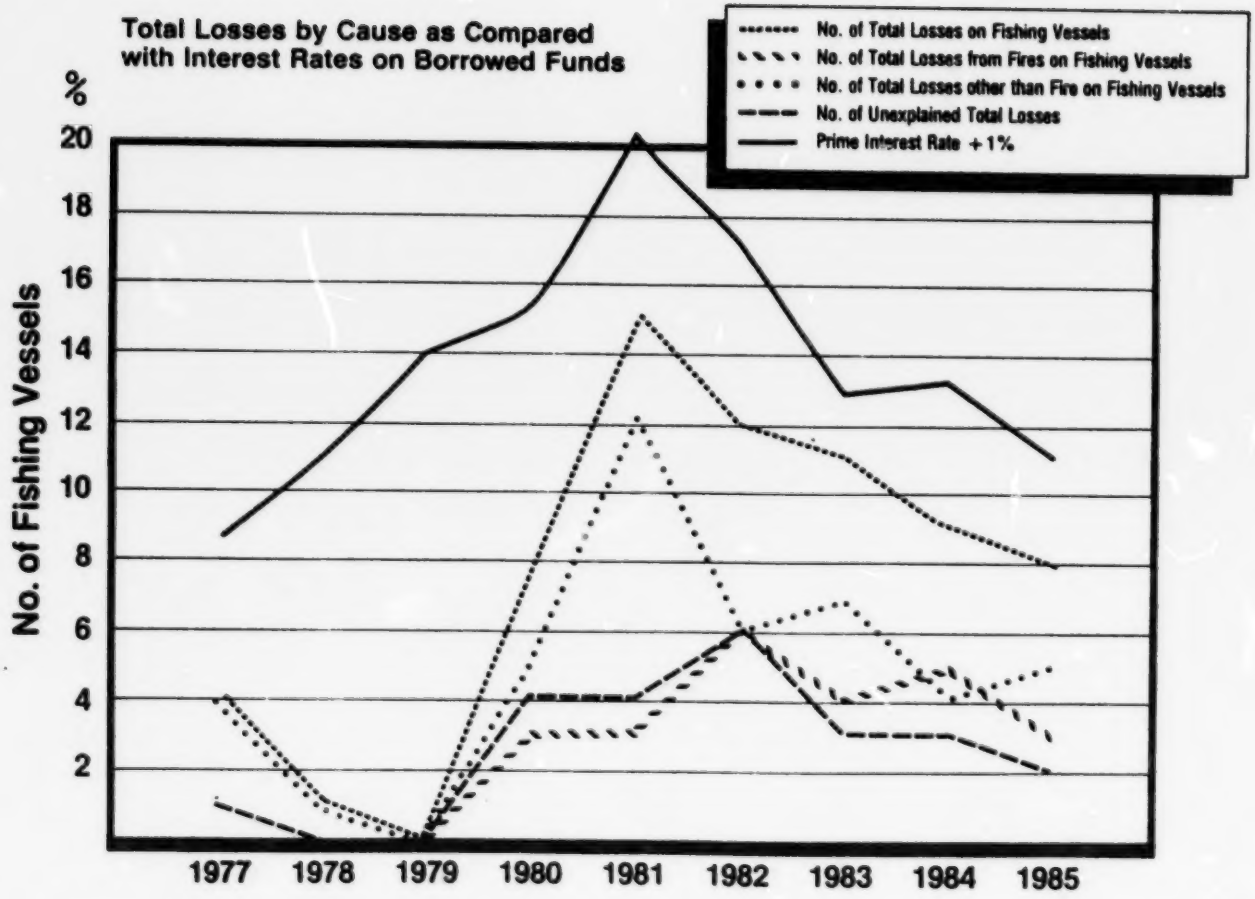
Sector 4


Interest on Borrowed Funds and
Price of Selected Species of Fish
Port Market Price Lobster
Port Market Price Crabs
Prime Interest Rate +1%
$/kg
Interest (%)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
.50
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

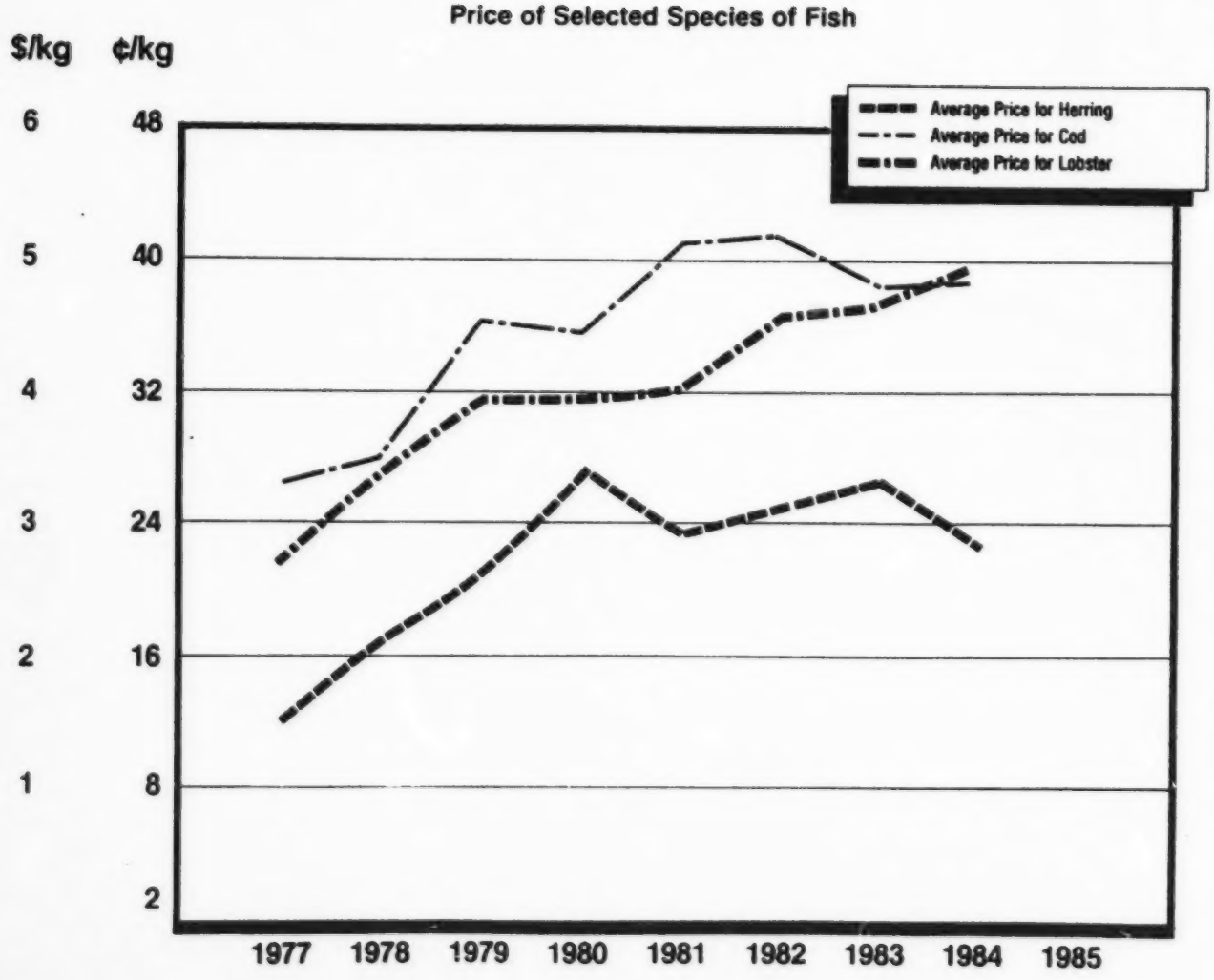
Sector 4


Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Prime Interest Rate +1%
Port Market Price Lobster
Port Market Price Cod
%
$/kg
No. of Fishing Vessels
20
15
10
5
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
.50
1977
1978
1979
1980
1981
1982
1983
1984
1985

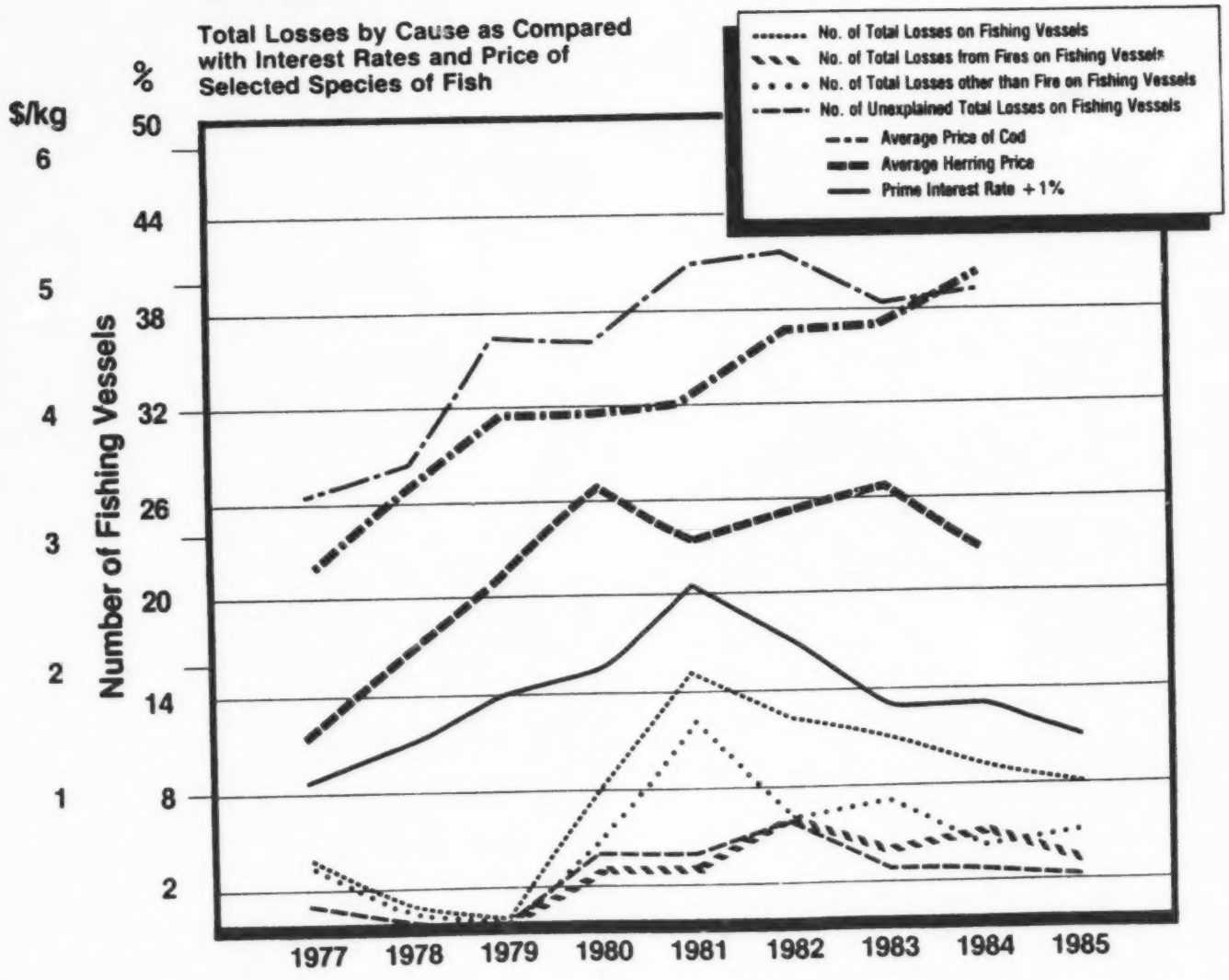
Sector 6


Total Losses by Cause as Compared with Interest Rates on Borrowed Funds
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses
Prime Interest Rate +1%
%
No. of Fishing Vessels
20
18
16
14
12
10
8
6
4
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

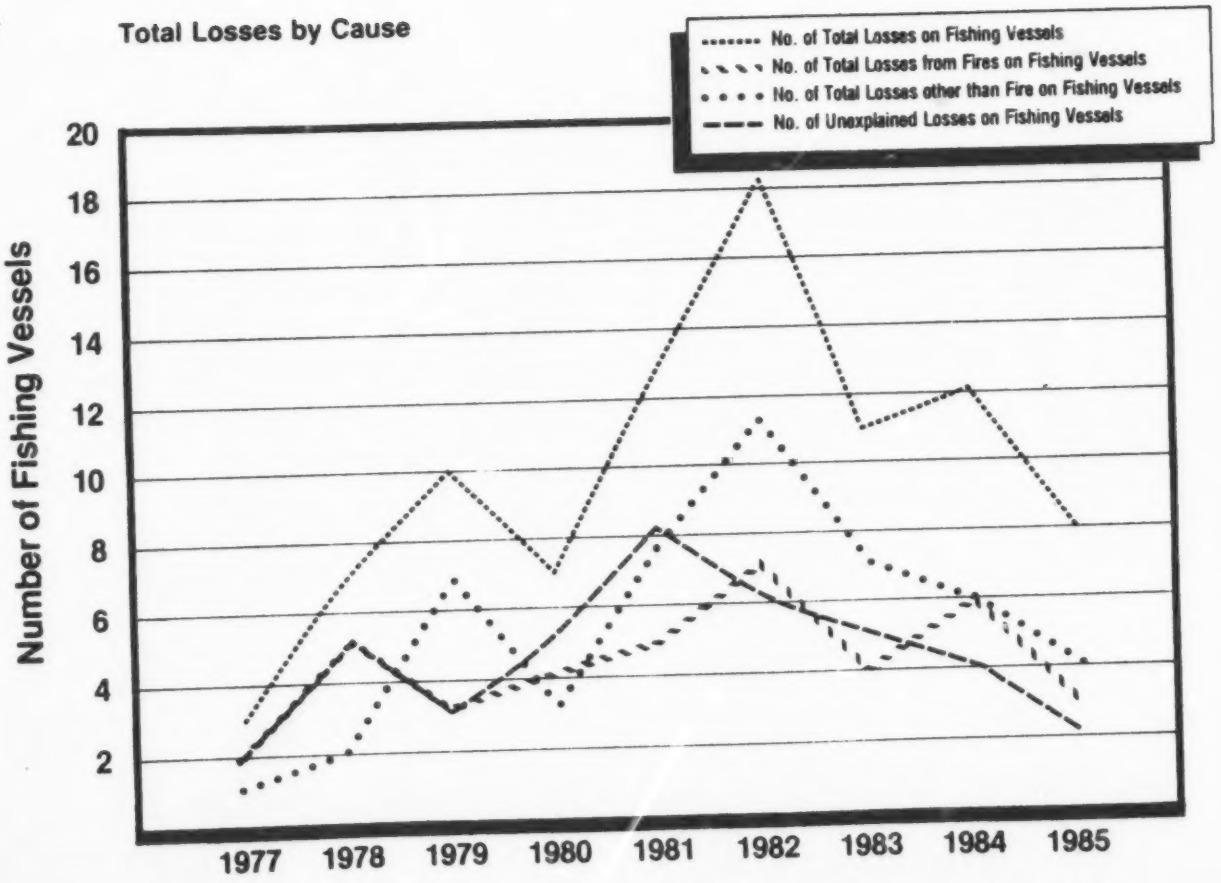
Sector 6


Price of Selected Species of Fish
$/kg
¢/kg
6
48
5
40
4
32
3
24
2
16
1
8
2
Average Price for Herring
Average Price for Cod
Average Price for Lobster
1977
1978
1979
1980
1981
1982
1983
1984
1985

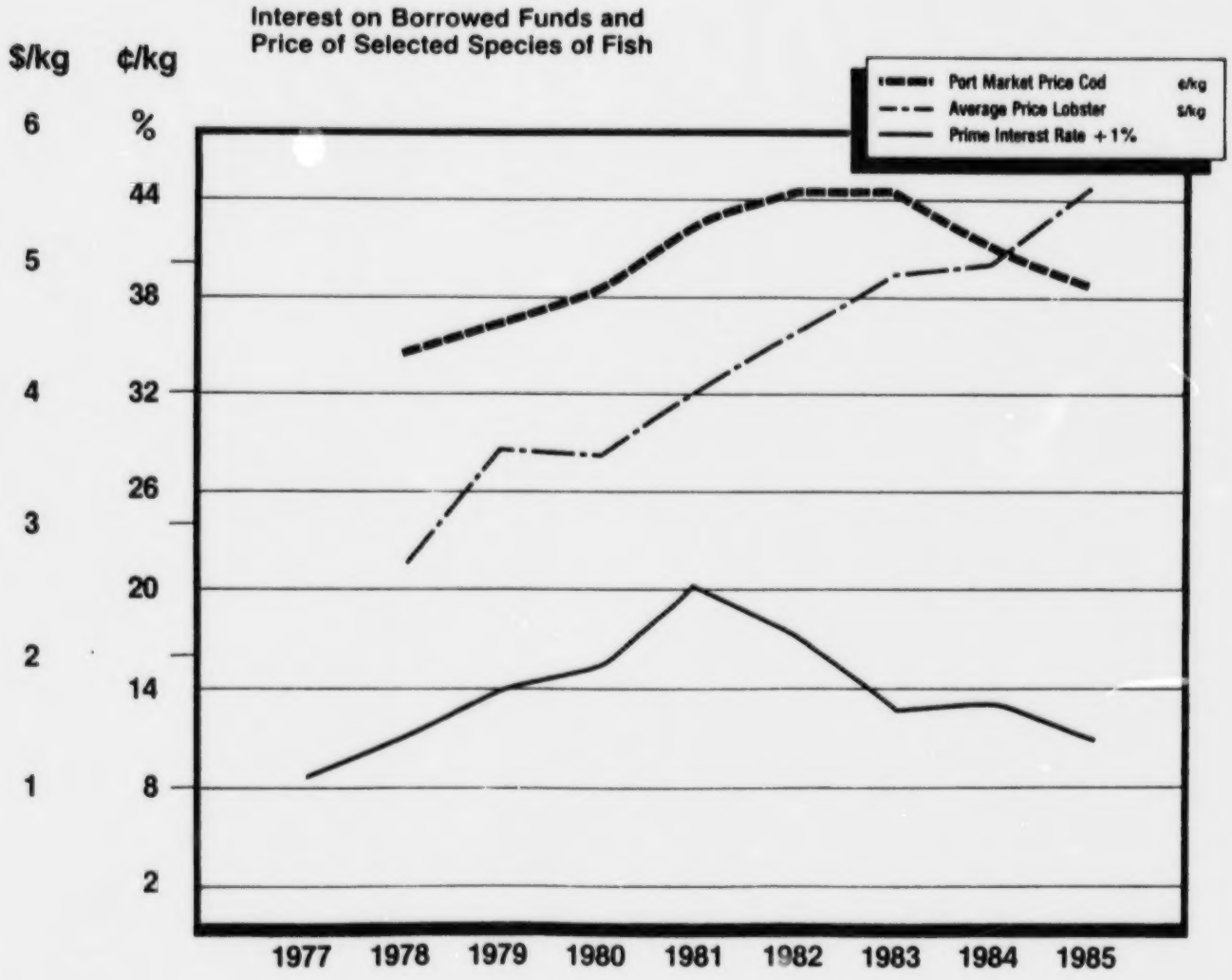
Sector 6


Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Average Price of Cod
Average Herring Price
Prime Interest Rate +1%
$/kg
%
Number of Fishing Vessels
6
5
4
3
2
1
50
44
38
32
26
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

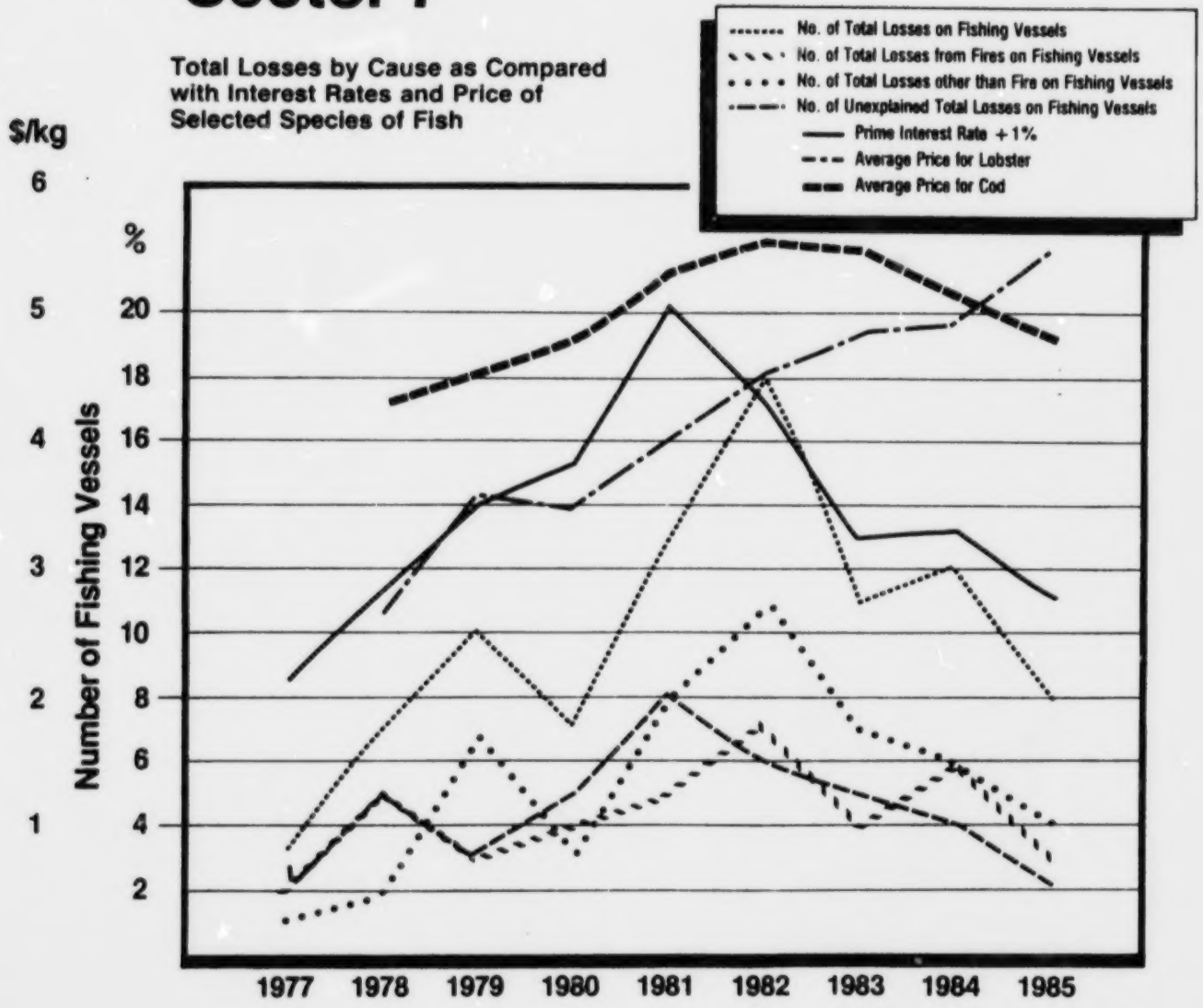
Sector 7


Total Losses by Cause
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Losses on Fishing Vessels
Number of Fishing Vessels
20
18
16
14
12
10
8
6
4
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

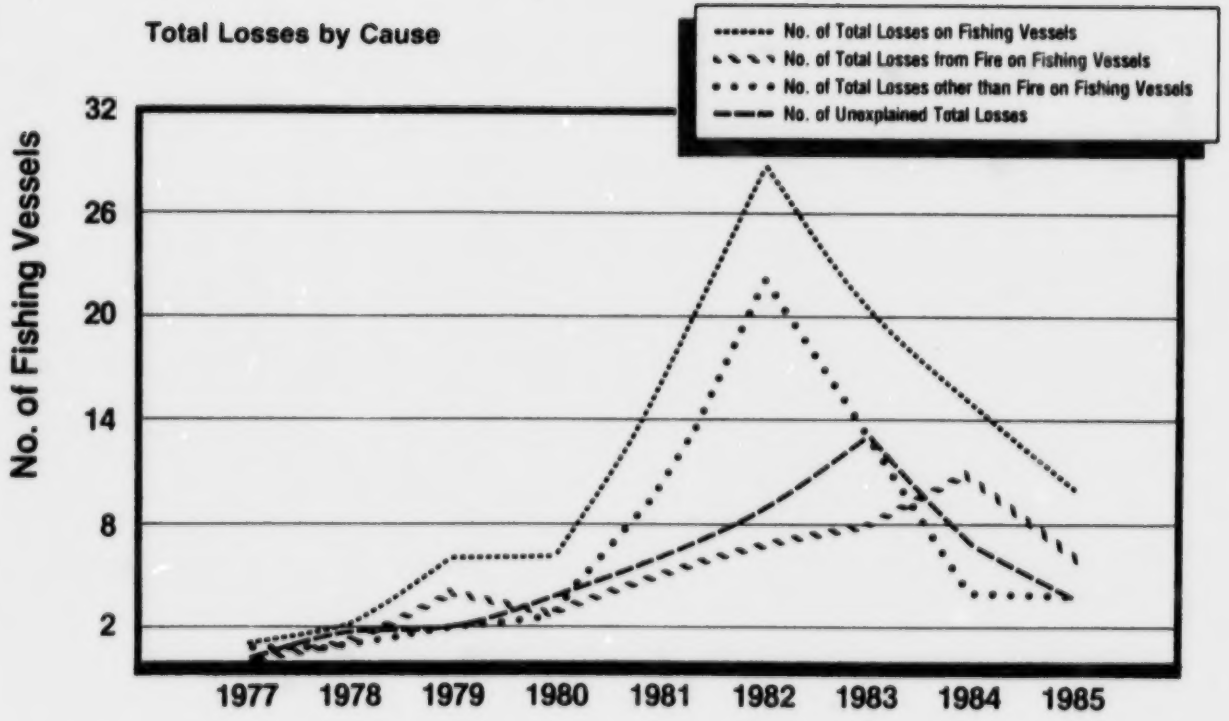
Sector 7


Interest on Borrowed Funds and
Price of Selected Species of Fish
$/kg
¢/kg
%
6
5
4
3
2
1
44
38
32
26
20
14
8
2
Port Market Price Cod ¢/kg
Average Price Lobster $/kg
Prime Interest Rate + 1%
1977
1978
1979
1980
1981
1982
1983
1984
1985

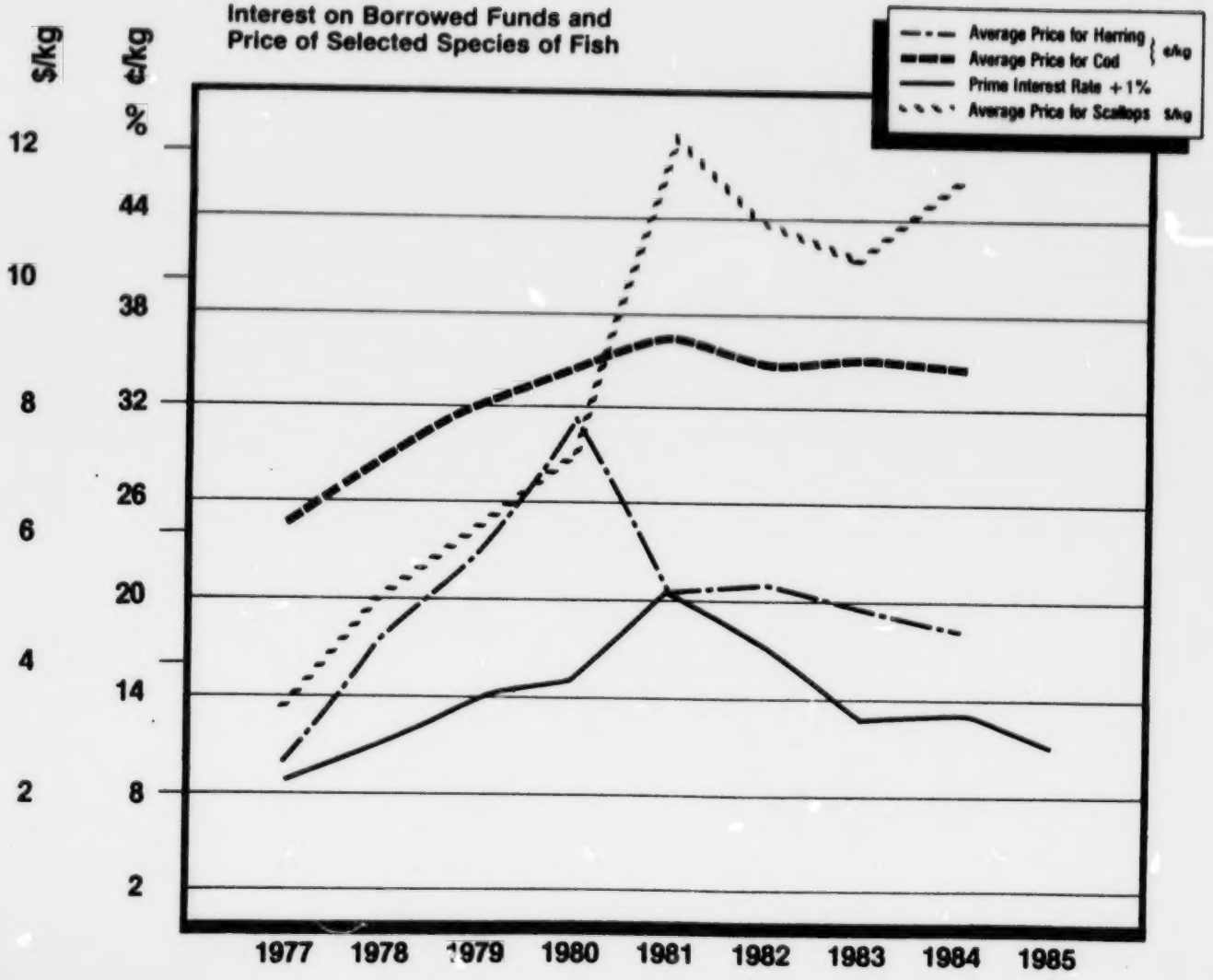
Sector 7


Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Prime Interest Rate + 1%
Average Price for Lobster
Average Price for Cod
$/kg
6
5
4
3
2
1
%
20
18
16
14
12
10
8
6
4
2
Number of Fishing Vessels
1977
1978
1979
1980
1981
1982
1983
1984
1985

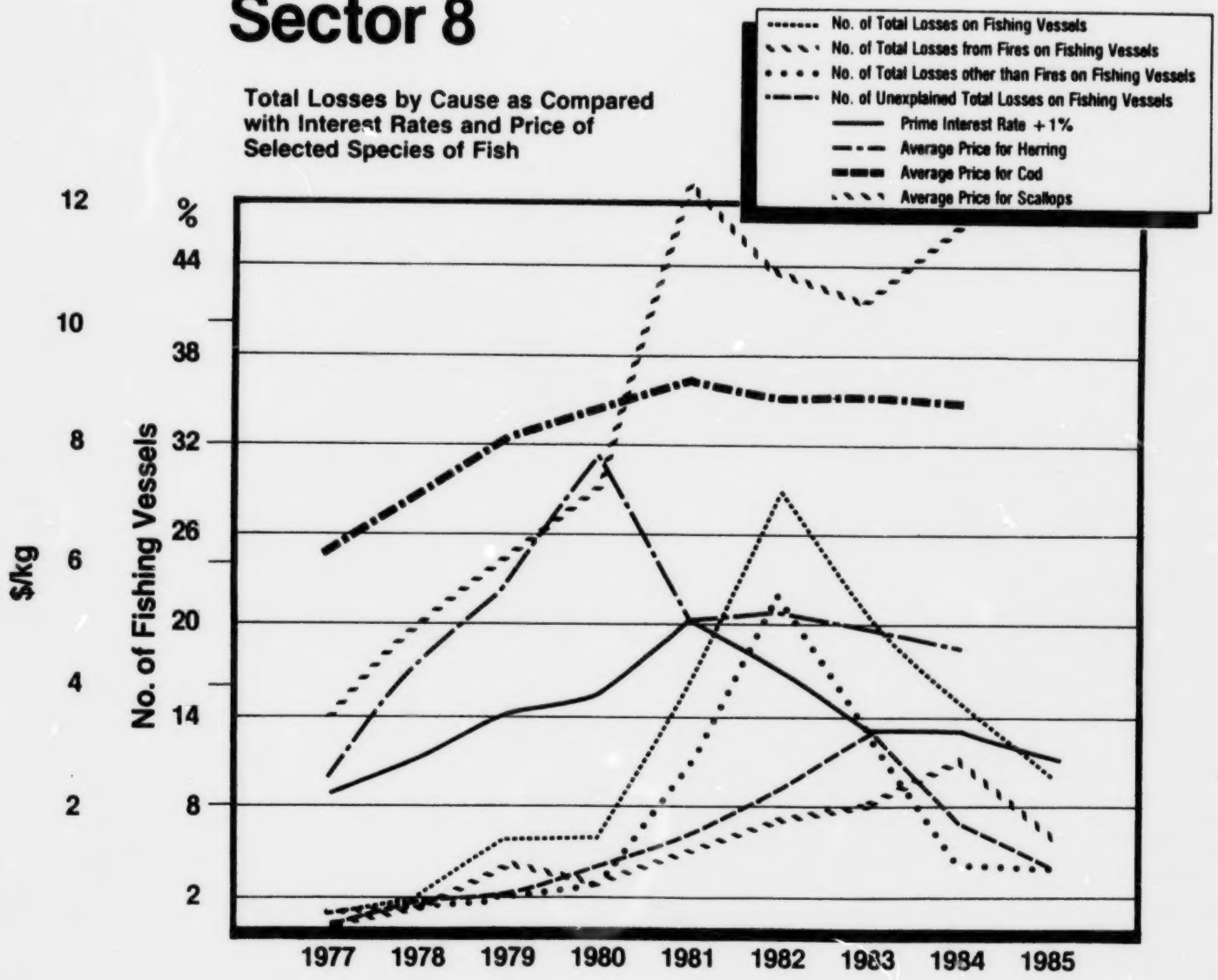
Sector 8


Total Losses by Cause
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fire on Fishing Vessels
No. of Total Losses other than Fire on Fishing Vessels
No. of Unexplained Total Losses
No. of Fishing Vessels
32
26
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

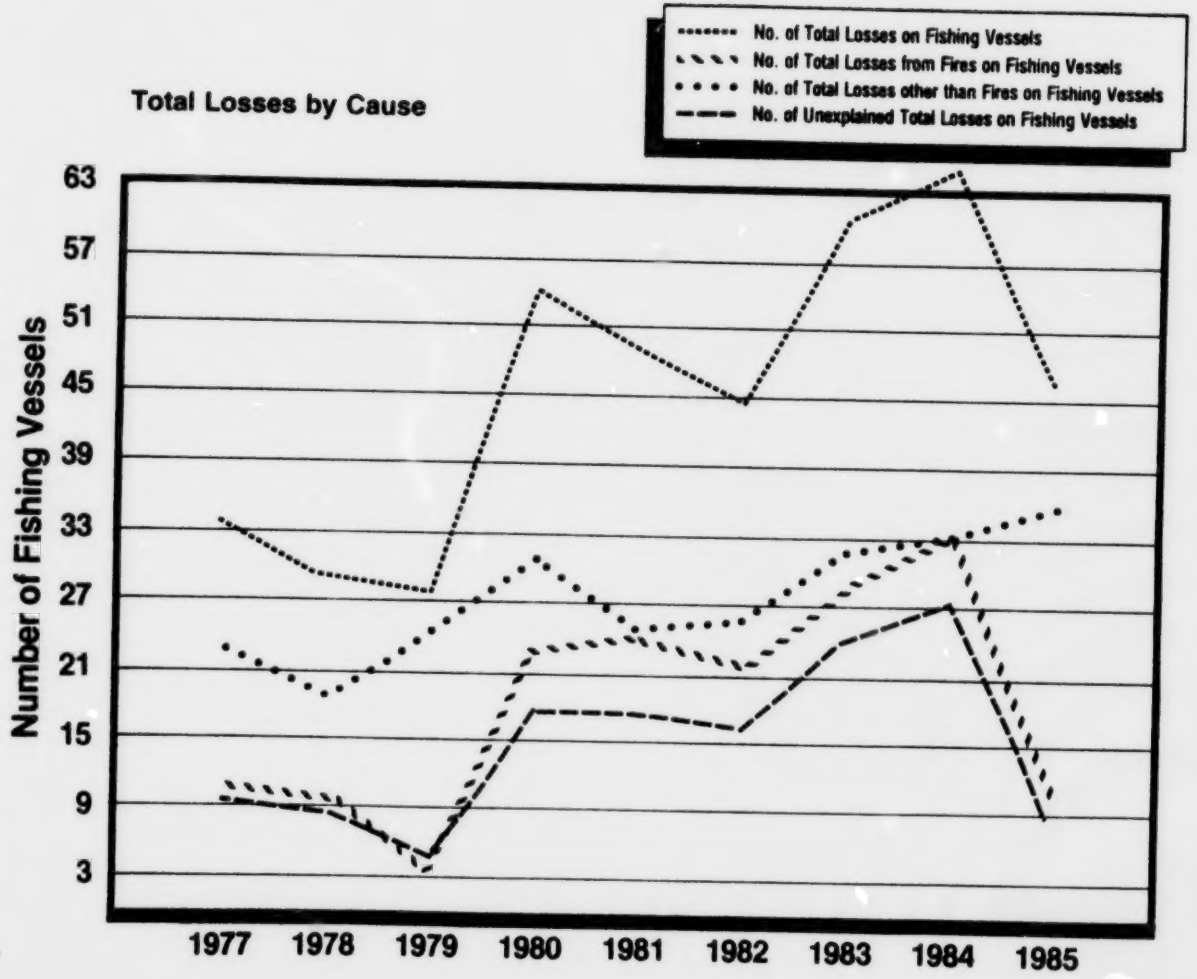
Sector 8


Interest on Borrowed Funds and
Price of Selected Species of Fish
$/kg
¢/kg
%
12
10
8
6
4
2
44
38
32
26
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985
Average Price for Herring
Average Price for Cod
¢/kg
Prime Interest Rate + 1%
Average Price for Scallops
$/kg

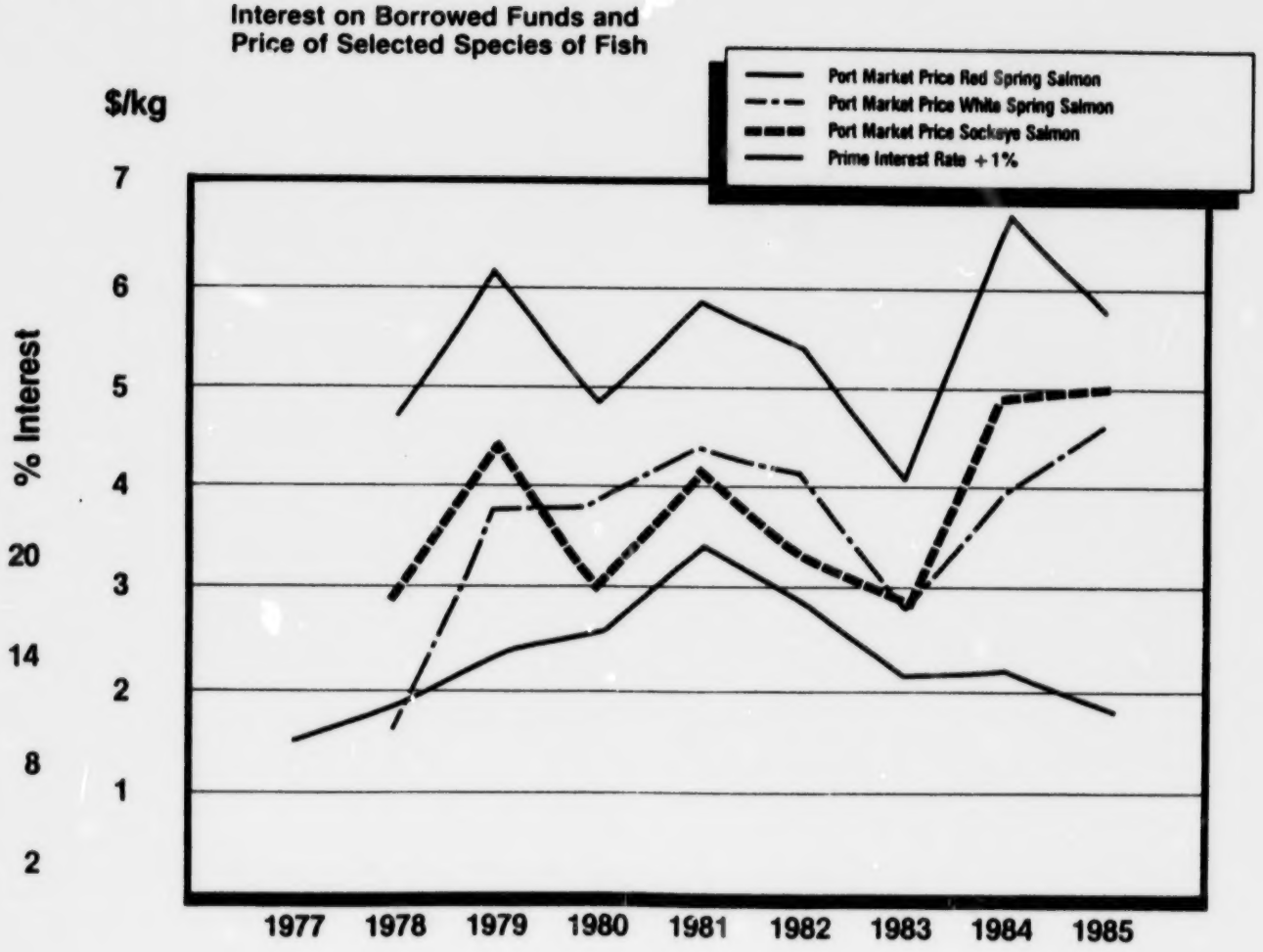
Sector 8


Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fires on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Prime Interest Rate +1%
Average Price for Herring
Average Price for Cod
Average Price for Scallops
$/kg
12
10
8
6
4
2
%
44
38
32
26
20
14
8
2
No. of Fishing Vessels
1977
1978
1979
1980
1981
1982
1983
1984
1985

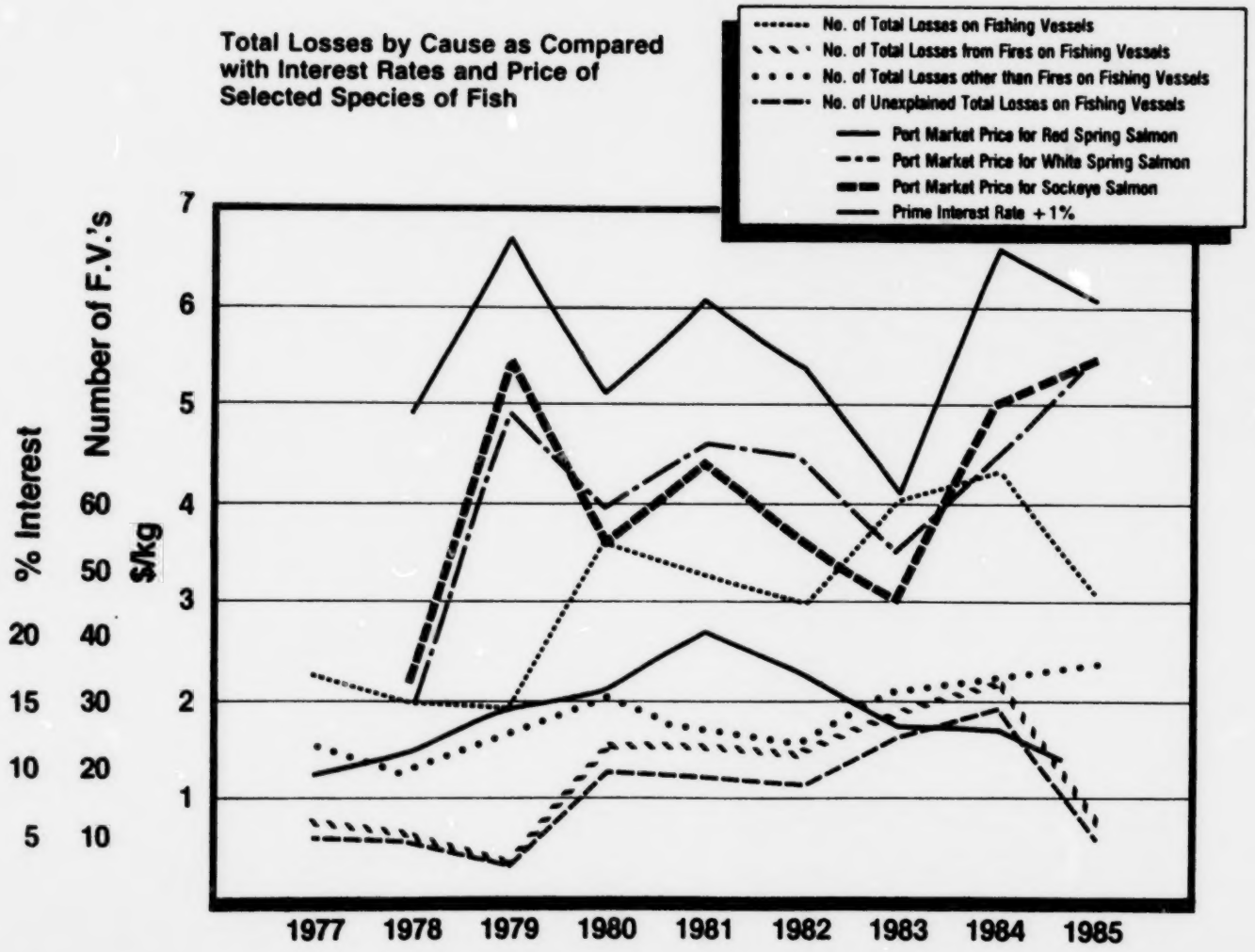
Sector 9


No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fires on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Total Losses by Cause
Number of Fishing Vessels
63
57
51
45
39
33
27
21
15
9
3
1977
1978
1979
1980
1981
1982
1983
1984
1985

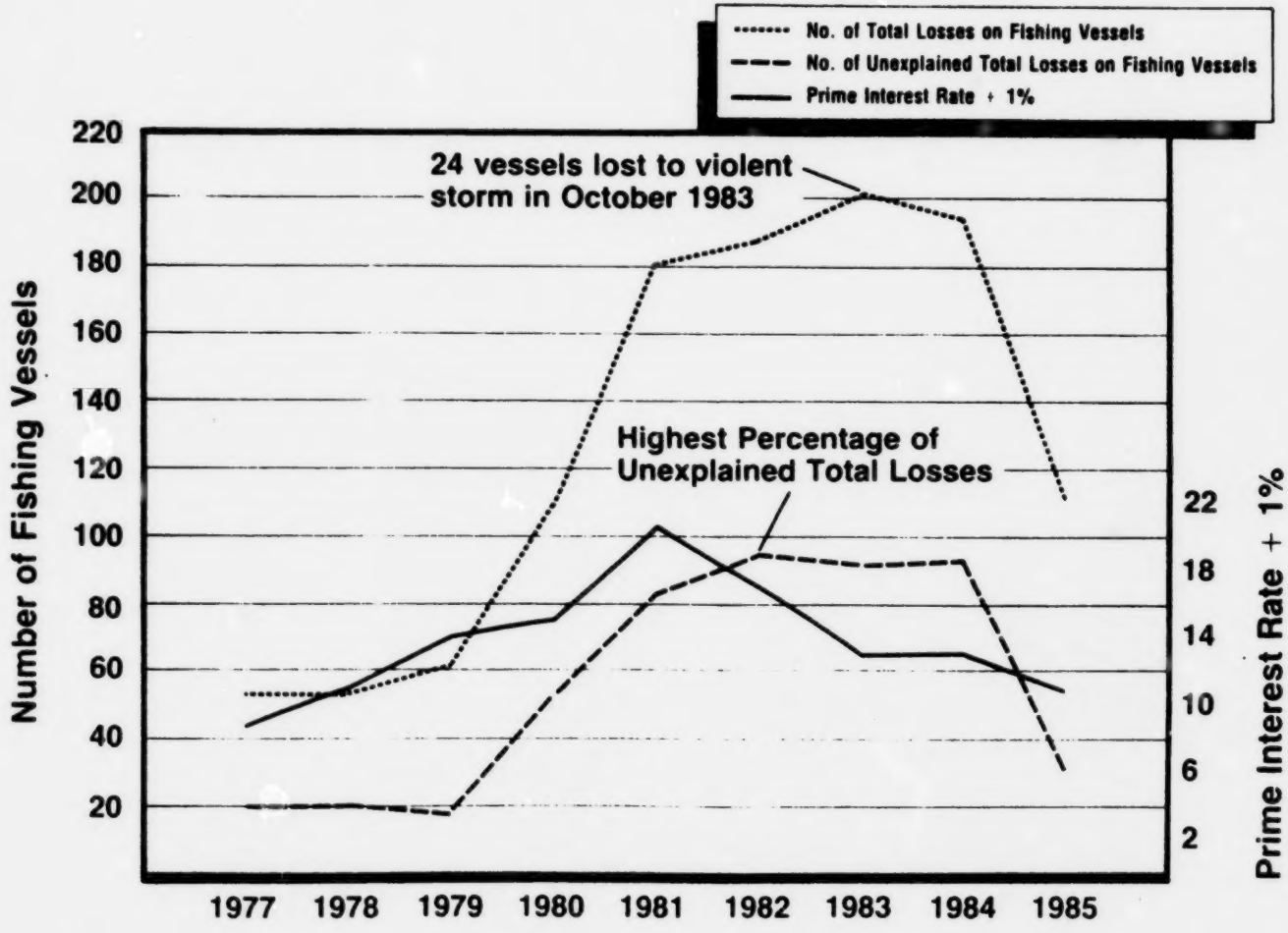
Sector 9


Interest on Borrowed Funds and
Price of Selected Species of Fish
Port Market Price Red Spring Salmon
Port Market Price White Spring Salmon
Port Market Price Sockeye Salmon
Prime Interest Rate +1%
$/kg
% Interest
7
6
5
4
3
2
1
20
14
8
2
1977
1978
1979
1980
1981
1982
1983
1984
1985

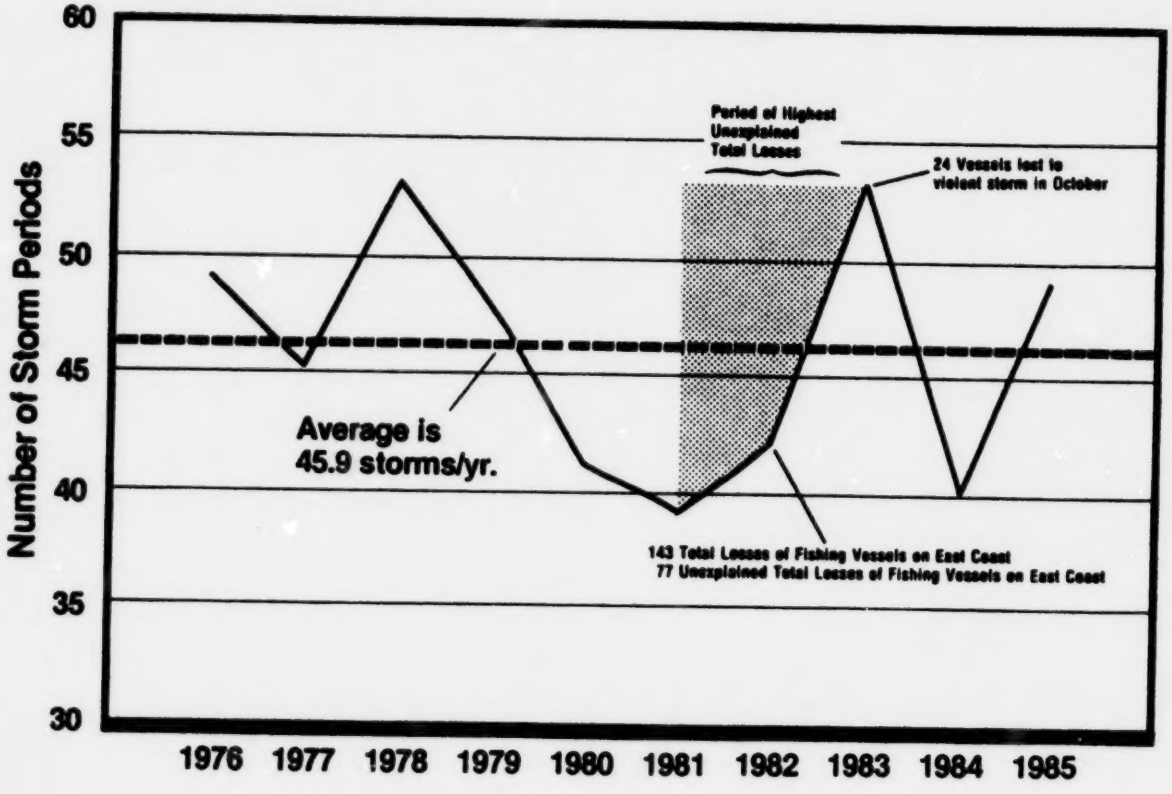
Sector 9


Total Losses by Cause as Compared with Interest Rates and Price of Selected Species of Fish
No. of Total Losses on Fishing Vessels
No. of Total Losses from Fires on Fishing Vessels
No. of Total Losses other than Fires on Fishing Vessels
No. of Unexplained Total Losses on Fishing Vessels
Port Market Price for Red Spring Salmon
Port Market Price for White Spring Salmon
Port Market Price for Sockeye Salmon
Prime Interest Rate +1%
% Interest
Number of F.V.'s
$/kg
20
15
10
5
40
30
20
10
60
50
7
6
5
4
3
2
1
1977
1978
1979
1980
1981
1982
1983
1984
1985

Summary of Total Losses on Canadian Fishing Vessels



Annual Number of Storm Periods East Coast



Cape St. James, B.C.